Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. - 42. (Cancelled)

43. (Previously Presented) A method of decomposing nitrogen dioxide (NO_2) to nitrogen monoxide (NO) in an exhaust gas of a lean-burn internal combustion engine, which method comprising:

adjusting the C1 hydrocarbon : nitrogen oxides (C1 HC:NO_x) ratio of the exhaust gas to from 0.1 to 2;

contacting the gas mixture from the adjusting step with a catalyst consisting of a particulate acidic refractory oxide selected from the group consisting of zeolites, tungsten-doped titania, silica-titania, zirconia-titania, gamma-alumina, amorphous silica-alumina and mixtures of any two or more thereof; and

passing the effluent gas from the contacting step to atmosphere.

44. (Previously Presented) The method according to Claim 43, further comprising adjusting the C1 HC:NO_2 ratio to from 0.2 to 4.

45. (Previously Presented) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio in the exhaust gas occurs at temperatures between about 250°C and about 500°C.

46. (Currently Amended) The method according to claim 43, wherein the particulate refractory oxide ~~is~~ comprises a zeolite selected from the group consisting of ZSM-5, β-zeolite, Y-zeolite, mordenite, and mixtures of any two or more thereof.

47. (Previously Presented) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio is effected in response to one or more of the following inputs: exhaust gas temperature; catalyst bed temperature; rate of exhaust gas mass flow; NO_2 in the exhaust gas; manifold vacuum; ignition timing; engine speed; throttle position;

lambda value of the exhaust gas composition; quantity of fuel injected in the engine; position of an exhaust gas recirculation valve; and boost pressure.

48. (Previously Presented) The method according to claim 47, wherein the step of adjusting the C1 HC:NO_x ratio is operated according to stored look-up tables or an engine map in response to the at least one input.

49. (Previously Presented) The method according to claim 43, wherein the step of adjusting the C1 HC:NO_x ratio comprises at least one of: injecting a reductant into the exhaust gas; adjusting an ignition timing of at least one engine cylinder; adjusting fuel injection timing of at least one engine cylinder; adjusting an engine air-to-fuel ratio; and adjusting an exhaust gas recirculation rate.

50. (Previously Presented) The method according to claim 43, further comprising contacting the exhaust gas with an oxidation catalyst comprising at least one platinum group metal, wherein the NO_2 decomposition catalyst is disposed downstream of the oxidation catalyst.

51. (Previously Presented) The method according to claim 50, further comprising contacting the exhaust gas with a particulate filter disposed between the oxidation catalyst and the NO_2 decomposition catalyst.

52. (Previously Presented) The method according to claim 51, wherein the NO_2 decomposition catalyst is disposed on a downstream end of the filter.

53. (Previously Presented) The method according to claim 50, wherein the adjusting step comprises injecting a reductant into the exhaust system upstream of the NO_2 decomposition catalyst and downstream of the oxidation catalyst.

54. (Previously Presented) The method of claim 50, wherein the at least one PGM metal is selected from the group consisting of platinum, palladium, and mixtures thereof.

55. (Cancelled)

56. (New) The method of claim 43, wherein the hydrocarbon is selected from the group consisting of diesel fuel, gasoline fuel, and liquid petroleum gas.

57. (New) The method of claim 43, wherein the hydrocarbon consists of diesel fuel.

58. (New) The method of claim 43, wherein the particulate refractory oxide consists of a zeolite selected from the group consisting of ZSM-5, β-zeolite, Y-zeolite, mordenite, and mixtures of any two or more thereof, wherein the zeolite does not support a metal.